

APOLLO PROGRAM DIRECTIVE NO. 43

TO : DISTRIBUTION

FROM:


APOLLO PROGRAM DIRECTOR

SUBJECT : Apollo Mission Implementation Plan

OFFICE OF PRIME RESPONSIBILITY: Apollo Operations (MAO)

ACTION : This Directive applies to the Office of Manned Space Flight and the Manned Space Flight Centers. It is also meant to provide guidance to the Office of Tracking and Data Acquisition, GSFC, the Department of Defense, and other agencies. OMSF Centers are to implement the requirements of this Directive.

REFERENCES: (a) Apollo Flight Mission Assignments Directive (current issue)
(b) Apollo Program Directive No. 4 (current issue)
(c) MSFC Launch Vehicle Mission Directives (current issue, each mission)
(d) MSC Mission Requirements Document (current issue, each mission)

I. PURPOSE

This Apollo Program Directive establishes the requirement for the issuance of a Mission Implementation Plan prior to each Apollo mission. The Mission Implementation Plan provides the mechanism for the Program Director to review the significant elements of mission planning and the planned accomplishment of mission objectives. Mission Implementation Plans will contain the information specified herein for the missions authorized in reference (a) and scheduled in reference (b).

II. SCOPE/APPLICABILITY

This Directive outlines the contents of the Mission Implementation Plan and establishes responsibilities and procedures for developing, maintaining, and updating the plan.

Mission areas to be included in the plan are:

- . Detailed Test Objectives
- . Operational Tests
- . Sequence of Pre-Launch Tests
- . Turn-around Plan
- . General Flight Plan
- . Alternate Mission Summary
- . Post-flight Debriefing Schedule
- . General Guidelines

III. RESPONSIBILITYA. OMSF

The Apollo Program Director has overall responsibility for the preparation and control of the Mission Implementation Plan. The Apollo Mission Director, representing the Apollo Program Director, is responsible for insuring the preparation and implementation of the Mission Implementation Plan. To assist the Apollo Mission Director, the Director of Apollo Operations (code MAO), OMSF, is responsible for coordination and publication of the Mission Implementation Plan. The Director of Apollo Operations (code MAO) is the central coordinating authority for the Mission Implementation Plan during its formulation and is responsible for processing revisions to the basic document.

B. Centers

Responsibility for providing the data specified in Section II is assigned to the Center Program Offices as identified in the following paragraphs. The responsible organizations will submit their inputs, as outlined in Sections IV and V, to the Apollo Program Office, Attention: Director, Apollo Operations, Code MAO.

1. Detailed Test Objectives

Responsibility: Launch Vehicle: MSFC
Spacecraft: MSC

2. Operational Tests

Responsibility: MSC DDMS
MSFC GSFC
KSC

3. Sequence of Pre-Launch Tests

Responsibility: KSC

4. Launch Turn-around Plan

Responsibility: KSC

5. Outline of Flight Plan

Responsibility: MSC

6. Alternate Mission Summary

Responsibility: MSFC and MSC

7. Post-flight Debriefing Schedule

Responsibility: MSC

8. General Guidelines

Responsibility: OMSF--Apollo Operations/Appropriate Centers

IV. MISSION IMPLEMENTATION PLAN DEVELOPMENT/REVISIONSA. Initial Mission Implementation Plan

Publication of an Initial Mission Implementation Plan is to occur as far in advance of the scheduled mission as feasible. The initial document will be developed by the Apollo Program Office from available documentation and will represent initial center planning. This issue will be updated as necessary. Centers will review and provide updates as appropriate.

B. Final Mission Implementation Plan

Publication of the Final Mission Implementation Plan will occur approximately six months prior to the scheduled launch. Center Program Offices will formally submit their inputs to the Apollo Program Office, Attention: Code MAO, no later than seven months prior to the officially scheduled launch date. These inputs will provide the current official planning data and meet the requirements specified in Section V below.

C. Revisions

Revisions to the Mission Implementation Plan will be required to incorporate changes as they occur to the mission planning. The Director, Apollo Operations, code MAO, is responsible for revisions to the Plan. All Center approved changes will be submitted to the Apollo Program Office, Attention: Code MAO, NASA Headquarters for incorporation into the pertinent Mission Implementation Plan.

1. Prior to F-7 months, the Apollo Program Office will maintain the Mission Implementation Plan.

2. Subsequent to the F-7 month center input, Center Program Offices will submit changes to the Plan when approved by the Center.

V. REPORTING REQUIREMENTSA. General

A general description of the contents of the Mission Implementation Plan is contained in this Section. Initial Center inputs (F-7 months)

6/22/68

and subsequent changes will be submitted to the Apollo Program Director.

B. Detailed Test Objectives (DTO)

Primary objectives for Apollo missions are assigned by the Apollo Flight Mission Assignments Document and state the principal purpose of the mission. Development Centers will further amplify, but not modify, these objectives by supporting Detailed Test Objectives for the launch vehicle and spacecraft.

The following is the minimum DTO information to be submitted by the Center Program Offices:

1. A brief statement identifying the DTO
2. Category of DTO--Mandatory, Principal, or Secondary
3. DTO priority for accomplishment
4. Identification of which primary objective the DTO supports.

C. Operational Tests

The evaluation of operational techniques not required by the Detailed Test Objectives are considered operational tests. These tests may be quasi-experimental in nature, but are not formally approved and assigned experiments. In no case shall operational tests be permitted which could impact the nominal mission or jeopardize the safe accomplishment of primary objectives. Operational tests which are planned for accomplishment during an Apollo mission shall be identified by the organizations specified in paragraph III.B.2 for inclusion in the Mission Implementation Plan.

Operational tests which are to be conducted on a mission will be identified and submitted for review by the Program Director. Unless security considerations dictate otherwise, a brief description will accompany each operational test.

The following minimum amount of information is to be submitted:

1. Operational Test Description
2. Purpose of Test
3. Justification for Test

D. Sequence of Pre-launch Tests

The sequence of the principal pre-launch tests conducted at KSC in preparation for the mission are contained in this section. Additionally, a brief description of the current test objectives and the anticipated test completion date will be presented. The minimum Space Vehicle tests to be identified in this Section are:

1. SIT's for launch vehicle and spacecraft
2. OAT's; plugs-in and plugs-out
3. FRT
4. CDDT
5. Countdown

E. Launch Turn-around Plan

The plan for the turn-around of the space vehicle from one launch time to the next opportunity for launch is described in this section. A summary description of the countdown period of effectivity, major constraints, and the times involved for accomplishing the turn-around are to be identified.

F. Outline of Flight Plan

An outline of the major activities to be performed on each mission will be incorporated into the Mission Implementation Plan. This shall include, as a minimum, the following information:

1. The basic mission profile depicted in terms of major periods of activity.
2. Launch window.
3. A brief description of the activities associated with the major periods of the mission.
4. A brief description of Recovery Plans.
5. A timeline for the accomplishment of the Detailed Test Objectives.

The specified periods of activity are those which are generally developed by the various mission planning groups. The following considerations are generally included:

1. Go/no go decision points in the mission
2. Interrelation of major events and maneuvers
3. An identifiable time frame
4. A significant portion of the mission either from a planning aspect or objective accomplishment aspect, or both.

Major events which are listed in the periods of activity are those which contribute to the accomplishment of the Detailed Test Objectives. Amplifying activities are also included when they enhance the general description of the period.

G. Alternate Mission Summary

If an anomaly occurs after lift-off that would prevent the Apollo space vehicle from following its nominal flight plan, an abort or an alternate mission will be initiated. Aborts will provide for an acceptable Flight Crew recovery while alternate missions will attempt to maximize the accomplishment of the mission objectives before providing for an acceptable recovery. A summary of the alternate mission sequences to be followed in the event of an anomaly will be included in the Mission Implementation Plan. Accomplishment of Detailed Test Objectives will be considered in the alternate mission planning efforts.

MSC/MSFC inputs for the identified alternate mission are to include the following:

1. Sequential identification of each alternate mission.
2. A timeline for the accomplishment of the Detailed Test Objectives for each alternate mission.

H. Post-flight Debriefing Schedule

The MSC Director of Flight Crew Operations develops and coordinates a crew post-flight debriefing schedule for each mission. The schedule will be forwarded to the Apollo Program Director and be incorporated in this section.

I. General Guidelines

This section is to be used for specifying policies, definitions, and guidelines that are mission related.